

Periodic Table of the Elements

The image shows a standard periodic table of elements. The elements are arranged in rows and columns, color-coded by groups. The groups are labeled at the top: 1 (IA), 2 (IIA), 3 (IIIB), 4 (IVB), 5 (VB), 6 (VIB), 7 (VIIB), 8 (VIII), 9 (VIII), 10 (VIII), 11 (IB), 12 (IIB), 13 (IIIA), 14 (IVB), 15 (VA), 16 (VIA), 17 (VIIA), and 18 (VIIIA). The elements are labeled with their symbols and names. The Lanthanide Series (elements 57-71) and Actinide Series (elements 89-103) are shown below the main table. The Noble Gas group (Group 18) is highlighted in yellow. The Halogen group (Group 17) is highlighted in green. The Alkali Metal group (Group 1) is highlighted in blue. The Alkaline Earth Metal group (Group 2) is highlighted in purple. The Transition Metals (Groups 3-10) are highlighted in various colors. The main group elements (Groups 13-16) are highlighted in various colors. The Lanthanide and Actinide series are highlighted in light blue and light green respectively.

Chemistry

QUALIFICATION: A-LEVEL

Awarding Body:

AQA

Length of Course:

2 Years

Chemistry is offered as a one year AS course that can be extended to an Advanced GCE qualification by studying the second part of the course (A2).

YEAR 12

AS and first year of A-level

Physical chemistry

Including atomic structure, amount of substance, bonding, energetics, kinetics, chemical equilibria and Le Chatelier's principle.

Inorganic chemistry

Including periodicity, Group 2 the alkaline earth metals, Group 7(17) the halogens.

Organic chemistry

Including introduction to organic chemistry, alkanes, halogenoalkanes, alkenes, alcohols, organic analysis.

Assessment

Paper 1 - Inorganic chemistry, with relevant physical chemistry, relevant practical skills. 1 hour 30 minutes long, 80 marks (65 marks short and long answer questions, 15 marks multiple choice questions), 50% of AS.

Paper 2 - Organic chemistry, with relevant physical chemistry, relevant practical skills 1 hour 30 minutes long, 80 marks (65 marks short and long answer questions, 15 marks multiple choice questions), 50% of AS.

YEAR 13

Second year of A-level

Physical chemistry

Including thermodynamics, rate equations, equilibrium constant (K_c) for homogeneous systems, electrode potentials and electrochemical cells.

Inorganic chemistry

Including properties of Period 3 elements and their oxides, transition metals, reactions of ions in aqueous solution.

Organic chemistry

Including optical isomerism, aldehydes and ketones, carboxylic acids and derivatives, aromatic chemistry, amines, polymers, amino acids, proteins and DNA, organic synthesis, NMR spectroscopy, chromatography.

Assessment

Paper 1 - Inorganic chemistry, with relevant physical chemistry, relevant practical skills.

2 hours long, 105 marks (a mixture of short and long answer questions), 35% of A-level.

Paper 2 - Organic chemistry, with relevant physical chemistry, relevant practical skills. 2 hours long, 105 marks (a mixture of short and long answer questions), 35% of A-level.

Paper 3 - all practical skills and all content.

2 hours long, 90 marks (40 marks on practical,

20 marks on all content, 30 marks multiple choice questions), 30% of A-level.

MATHEMATICAL REQUIREMENTS

Overall, at least 20% of the marks in assessments for chemistry will require the use of mathematical skills. These skills will be applied in the context of chemistry and will be at least the standard of higher tier GCSE Mathematics. These skills include: arithmetic and numerical computation, handling data, algebra, graphs, geometry and trigonometry.

PRACTICAL SKILLS ASSESSMENT

Practical work will be assessed in the written papers. 15% of the total A-level marks will be for practical knowledge and understanding. A separate 'endorsement' of practical work will be assessed by teachers. This will not be graded. If students pass, it will be reported on their certificate; otherwise it will not be reported. There will be 12 designated practicals which have to be completed by the students during their two years of A-level Chemistry.

COMPARISON WITH GCSE

The course builds on knowledge, understanding and process skills inherent in GCSE. The qualification is suitable for students who have an interest in Chemistry and for those students who want to use Chemistry to support other qualifications or progress into further studies.

RELEVANCE TO FURTHER STUDIES AND CAREERS

An Advanced GCE in Chemistry is an essential qualification for a large number of Higher Education courses and a wide variety of career areas. It can lead to degree or other courses in Chemistry, Engineering, Forensic Science, Geology, Medicine, Physics, Pharmacy,

Pharmacology, and many others. Chemistry students find a wide range of career prospects in industry. With additional qualifications and experience many chemists progress into other areas such as corporate planning, marketing and sales, technical writing and information departments.

ENTRY REQUIREMENTS

GCSE Grade 6, 6 at Combined Science Trilogy and 6 at GCSE Maths or GCSE grade 6 at Chemistry and 6 at GCSE Maths

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SIXTH FORM VISIT

GIRLS' SCHOOL VISIT

BOYS' SCHOOL VISIT